

# System Compliant Actuation for Structural Engine Noise Remission, Phase I

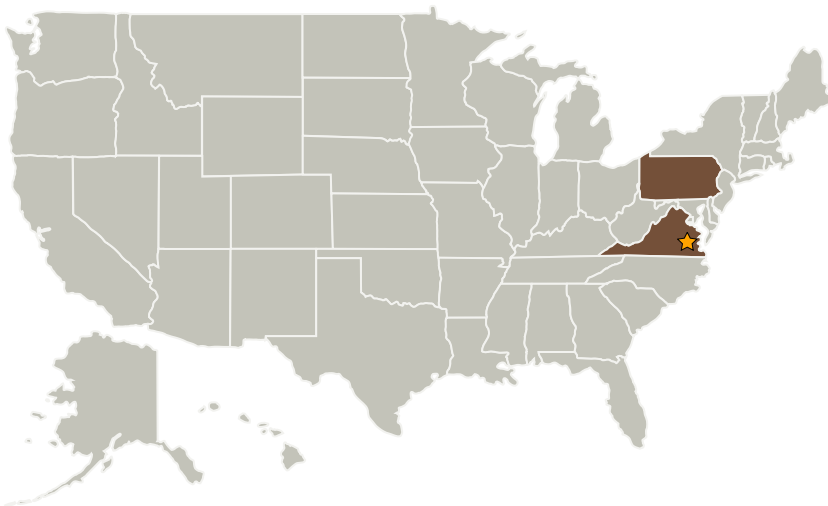
Completed Technology Project (2004 - 2004)



## Project Introduction

The purpose of the research into ?Compliant Actuator? design will be to demonstrate to prototype level a low profile fully integrated control mechanism. This mechanism will be the first of its kind in that it enables independent multifunctionally integrated control including all i/o, processing, control and power functions in a single compliant package that uses a active piezoceramic substrate. A compliant actuator can integrate a choice of piezoceramic actuators including piezoceramic wafers, MFC?s, NASA Flex-Pak or QorTek?s Thunder bimorphs etc. as its substrate/activation component as to yield a wide variety wideband controlled actuation systems with high s/n ratio. Used as a strain actuator, it extends with internal applied voltage while bonded to the surface of a structure. Used as a bimorph actuator, it bends with applied voltage while clamped firmly at one end in response to the internal thin film sensor measurements

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Langley Research Center (LaRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
QorTek Inc	Supporting Organization	Industry Small Disadvantaged Business (SDB)	Williamsport, Pennsylvania

## Primary U.S. Work Locations

Pennsylvania	Virginia
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Ross W Bird

## Technology Areas

**Primary:**

- TX17 Guidance, Navigation, and Control (GN&C)
  - └ TX17.3 Control Technologies
    - └ TX17.3.4 Control Force/Torque Actuators